

ABSTRACT

Process A process for pretreating a very acid natural gas containing a substantial amount of hydrogen sulfide (H_2S), possibly combined with carbon dioxide (CO_2), comprising includes at least a stage wherein the initial natural gas is contacted in a distillation column with a liquid condensate itself resulting from cooling of the gaseous fraction obtained during said the contacting stage. This solution allows to eventually recover at a lower cost a gas enriched in methane, depleted in hydrogen sulfide and freed from substantially all of the water it contains, and a liquid phase containing most of the hydrogen sulfide, substantially all of the water and depleted in hydrocarbon. Control of the thermodynamic conditions during the stages that characterize the process, according to the water content of the gas during treatment, allows progressive exhaustion of the water contained in said the gas while preventing hydrates formation.